

SEQUENCE LISTING

<110> STEINESS, EVA
 <120> GLP-1 AND METHODS FOR TREATING DIABETES

<130> 50412/020003

<140> 10/517,563
 <141> 2004-12-07

<150> PCT/DK03/000463
 <151> 2003-07-02

<150> 60/465,613
 <151> 2003-04-24

<150> 60/393,917
 <151> 2002-07-04

<160> 39

<170> PatentIn version 3.5

<210> 1
 <211> 31
 <212> PRT
 <213> Homo sapiens

<400> 1

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
 1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
 20 25 30

<210> 2
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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer

<400> 2
 aaccacacca ggctttgtc a 21

<210> 3
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer

<400> 3
 cttctccca cgtccagttg ttc 23

<210> 4

<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 4
aggctctcta cctggtgtgt ggggagcgt

29

<210> 5
<211> 44
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 5
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Ser Lys Lys Lys Lys Lys
35 40

<210> 6
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic GLP-1 variant

<400> 6
His Gly Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Lys Lys
20 25 30

Lys Lys Lys Lys
35

<210> 7
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic GLP-1 variant

<400> 7

Lys Lys Lys Lys Lys Lys His Gly Glu Gly Thr Phe Thr Ser Asp Val
1 5 10 15

Ser Ser Tyr Leu Glu Gly Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu
20 25 30

Val Lys Gly Arg Lys Lys Lys Lys Lys Lys
35 40

<210> 8

<211> 36

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic GLP-1 variant

<400> 8

Lys Lys Lys Lys Lys Lys His Gly Glu Gly Thr Phe Thr Ser Asp Val
1 5 10 15

Ser Ser Tyr Leu Glu Gly Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu
20 25 30

Val Lys Gly Arg
35

<210> 9

<211> 37

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic GLP-1 variant

<220>

<221> MOD_RES

<222> (31)..(31)

<223> Lys(palmitoyl)

<400> 9

His Gly Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Lys Lys
20 25 30

Lys Lys Lys Lys Lys
35

<210> 10

<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic GLP-1 variant

<220>
<221> MOD_RES
<222> (20)..(20)
<223> Lys(palmitoyl)

<400> 10

His Gly Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Lys Lys
20 25 30

Lys Lys Lys Lys
35

<210> 11
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic GLP-1 variant

<220>
<221> MOD_RES
<222> (28)..(28)
<223> Lys(palmitoyl)

<400> 11

His Gly Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Lys Lys
20 25 30

Lys Lys Lys Lys
35

<210> 12
<211> 38
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic GLP-1 variant

<400> 12

His Gly Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Lys Lys
20 25 30

Lys Lys Lys Lys Lys Lys
35

<210> 13
<211> 40
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic GLP-1 variant

<400> 13

His Gly Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Lys Lys
20 25 30

Lys Lys Lys Lys Lys Lys Lys
35 40

<210> 14
<211> 37
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic GLP-1 variant

<400> 14

His Gly Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Lys
20 25 30

Lys Lys Lys Lys Lys
35

<210> 15
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic GLP-1 variant

<400> 15

His Ala Gln Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
20 25 30

<210> 16

<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic GLP-1 variant

<220>

<221> MOD_RES

<222> (3)..(3)

<223> acetyl-Lys

<400> 16

His Ala Lys Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
20 25 30

<210> 17

<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic GLP-1 variant

<400> 17

His Ala Glu Gly Thr Phe Thr Ser Asp Thr Ser Lys Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
20 25 30

<210> 18

<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic GLP-1 variant

<400> 18

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Lys Tyr Leu Glu Gly
Page 6

1 5 10 15
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
 20 25 30

<210> 19
 <211> 31
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic GLP-1 variant

<400> 19

His Gly Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
 1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
 20 25 30

<210> 20
 <211> 31
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic GLP-1 variant

<400> 20

His Ser Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
 1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
 20 25 30

<210> 21
 <211> 28
 <212> PRT
 <213> Homo sapiens

<400> 21

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
 1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys
 20 25

<210> 22
 <211> 29
 <212> PRT
 <213> Homo sapiens

<400> 22

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly
20 25

<210> 23
<211> 30
<212> PRT
<213> Homo sapiens

<400> 23

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg
20 25 30

<210> 24
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> GLP-1 analog

<400> 24

His Val Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
20 25 30

<210> 25
<211> 44
<212> PRT
<213> Artificial sequence

<220>
<223> exendin-4 analog

<400> 25

His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Lys Lys Lys Lys Lys
35 40

<210> 26
<211> 44
<212> PRT
<213> Artificial Sequence

<220>
<223> extendin-4 analog

<400> 26

His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Ser Lys Lys Lys Lys Lys
35 40

<210> 27
<211> 44
<212> PRT
<213> Artificial sequence

<220>
<223> Extendin-4 analog

<400> 27

His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Pro Pro Pro Ser Lys Lys Lys Lys Lys
35 40

<210> 28
<211> 44
<212> PRT
<213> Artificial sequence

<220>
<223> Extendin-4 analog

<400> 28

His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Ala Pro Pro Pro Ser Lys Lys Lys Lys Lys
35 40

<210> 29
 <211> 45
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Exendin-4 analog

<220>
 <221> MOD_RES
 <222> (39)..(39)
 <223> Lys(palmitoyl)

<400> 29

His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
 20 25 30

Ser Gly Ala Pro Pro Pro Lys Lys Lys Lys Lys Lys
 35 40 45

<210> 30
 <211> 45
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Exendin-4 analog

<220>
 <221> MOD_RES
 <222> (39)..(39)
 <223> Lys(palmitoyl)

<400> 30

His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
 20 25 30

Ser Ala Pro Pro Pro Ser Lys Lys Lys Lys Lys Lys
 35 40 45

<210> 31
 <211> 45
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Exendin-4 analog

<220>
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 <222> (39)..(39)
 <223> Lys(palmitoyl)
 <400> 31
 His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1 5 10 15
 Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
 20 25 30
 Ser Gly Pro Pro Pro Ser Lys Lys Lys Lys Lys Lys
 35 40 45
 <210> 32
 <211> 45
 <212> PRT
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 <220>
 <223> Exendin-4 analog
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 <221> MOD_RES
 <222> (39)..(39)
 <223> Lys(palmitoyl)
 <400> 32
 His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1 5 10 15
 Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
 20 25 30
 Ser Gly Ala Pro Pro Ser Lys Lys Lys Lys Lys Lys
 35 40 45
 <210> 33
 <211> 46
 <212> PRT
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 <223> Exendin-4 analog
 <220>
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 <222> (40)..(40)
 <223> Lys(palmitoyl)
 <400> 33
 His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser Lys Lys Lys Lys Lys Lys
35 40 45

<210> 34
<211> 43
<212> PRT
<213> Artificial sequence

<220>
<223> Exendin-4 analog

<400> 34

His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Ser Lys Lys Lys Lys Lys Lys
35 40

<210> 35
<211> 41
<212> PRT
<213> Artificial sequence

<220>
<223> Exendin-4 analog

<400> 35

Lys Lys Lys Lys Lys His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser
1 5 10 15

Lys Gln Met Glu Glu Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys
20 25 30

Asn Gly Gly Pro Ser Ser Gly Ala Ser
35 40

<210> 36
<211> 42
<212> PRT
<213> Artificial sequence

<220>
<223> Exendin-4 analog

<400> 36

Asn Glu Glu Glu Glu Glu His Gly Glu Gly Thr Phe Thr Ser Asp Leu
Page 12

1 5 10 15

Ser Lys Gln Met Glu Glu Glu Ala Val Arg Leu Phe Ile Glu Trp Leu
 20 25 30

Lys Asn Gly Gly Pro Ser Ser Gly Ala Ser
 35 40

<210> 37
 <211> 48
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Exendin-4 analog

<400> 37

Lys Lys Lys Lys Lys Lys His Gly Glu Gly Thr Phe Thr Ser Asp Leu
 1 5 10 15

Ser Lys Gln Met Glu Glu Glu Ala Val Arg Leu Phe Ile Glu Trp Leu
 20 25 30

Lys Asn Gly Gly Pro Ser Ser Gly Ala Ser Lys Lys Lys Lys Lys Lys
 35 40 45

<210> 38
 <211> 48
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Exendin-4 analog

<400> 38

Asn Glu Glu Glu Glu Glu His Gly Glu Gly Thr Phe Thr Ser Asp Leu
 1 5 10 15

Ser Lys Gln Met Glu Glu Glu Ala Val Arg Leu Phe Ile Glu Trp Leu
 20 25 30

Lys Asn Gly Gly Pro Ser Ser Gly Ala Ser Lys Lys Lys Lys Lys Lys
 35 40 45

<210> 39
 <211> 42
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Exendin-4 analog

<400> 39

His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Ser Lys Lys Lys Lys Lys Lys
35 40